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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference<br>SH-18948-PCT  | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) |  |
| International application No.<br><b>PCT/KR2003/000625</b>  | International filing date (day/month/year)<br><b>28 MARCH 2003 (28.03.2003)</b>  | Priority date (day/month/year)<br>28 MARCH 2002 (28.03.2002) |
| International Patent Classification (IPC) or national classification and IPC<br><br><b>IPC7 G11B 7/24, G11B 7/26</b> |  |  |
| Applicant<br><br><b>SAMSUNG ELECTRONICS CO., LTD. et al</b>  |  |  |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

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|--|--|
| Date of submission of the demand<br><br>01 SEPTEMBER 2003 (01.09.2003)   | Date of completion of this report<br><br>05 JULY 2004 (05.07.2004)   |
| Name and mailing address of the IPEA/KR<br> Korean Intellectual Property Office<br>920 Dunsan-dong, Seo-gu, Daejeon 302-701,<br>Republic of Korea<br>Facsimile No. 82-42-472-7140 | Authorized officer<br><br>JANG, Hyun Sook<br><br>Telephone No. 82-42-481-5404<br> |

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR2003/000625

## I. Basis of the report

### 1. With regard to the elements of the international application:\*

- ☒ the international application as originally filed
- ☐ the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the claims:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, as amended (together with any statement) under Article 19  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the drawings:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

### 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

### 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

### 4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheet \_\_\_\_\_

### 5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed." and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

# INTERNATIONAL PRELIMINARY EXAMINATION

International application No.  
PCT/KR2003/000625

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

|                               |        |  |     |
|-------------------------------|--------|--|-----|
| Novelty (N)                   | Claims | 2-8, 10, 14-22, 24-30, 32, 36-44, 46-52, 54, 58-66 | YES |
|                               | Claims | 1, 9, 11-13, 23, 31, 33-35, 45, 53, 55-57          | NO  |
| Inventive step (IS)           | Claims | 5-8, 10, 14-22, 27-30, 32, 36-44, 49-52, 54, 58-66 | YES |
|                               | Claims | 2-4, 24-26, 46-48                                  | NO  |
| Industrial applicability (IA) | Claims | 1-66   | YES |
|                               | Claims | None   | NO  |

### 2. Citations and explanations (Rule 70.7)

1) Reference is made to the following documents:

D1 = JP 11066611 A

D2 = JP 10293942 A

D3 = KR 1998-025025 A

2) The present invention relates to a optical recording medium, magneto-optic recording medium, recording method, and a recording/reproducing apparatus for said recording medium.

3) D1 relates to an optical recording medium comprising: a substrate; a dielectric layer; a recording layer; and a reflecting layer, which is characterized by altering the absorption rate of the recording layer and a phase transition by a laser beam.

4) D2 relates to an optical information recording media comprising: a transmissible substrate; a phase change recording layer; a transparent protective layer; and a reflection layer. D2 is a new optical disk which assures high-density recording, reproducing and erasing. This recording layer comprises metal using rare earth elements such as Tb, Gd, Dy and Ho, and transion metals such as Fe, Co and Ni.

5) D3 is a magneto-optic recording medium, recording method and a magneto-optic recording apparatus comprising: a dielectric layer, a recording layer and a recording supplementary layer. D3 is characterized by a reduction of the recording magnetic field. The recording layer comprises DyFeCo and GdFeCo, and a information is recorded by change of spin direction, by means of an external magnetic field.

(continued on Supplemental

Box.)

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

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## Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

### Continuation of:

6) Claim 1 of the present invention relates to a phase change method of recording information on a recording medium by changing absorption coefficients of optical constants of the recording layer and the dielectric layer of the recording medium. D1 also is an optical recording medium related to a phase change by changing the absorption rate by a laser beam. Therefore, Claim 1 is the same invention as D1.

Claims 23 and 45 of the present invention relate to a recording medium and an information recording apparatus using a recording medium manufactured by the above Claim 1 and recording medium. Those characteristics are also the same as D1.

Claims 9, 11-13, 31, 33-35, 53 and 55-57 of the present invention are a magneto-optical method, a recording medium, and a recording apparatus which comprised of recording layer and a dielectric layer and record information by change of spin direction; and magneto-optic recording method which records information by change of spin direction by an external magnetic field; a recording medium; a recording apparatus which records information using the above magneto-optic recording medium.

D3 comprises a dielectric layer and a recording layer. It relates to a magneto-optic recording medium comprised of transition metal using rare earth elements and a magnetooptic recording apparatus. Therefore, Claims 9, 11-13, 31, 33-35, 53 and 55-57 are similar to D3.

Accordingly, Claims 1, 9, 11-13, 23, 31, 33-35, 45, 53 and 55-57 are not considered to be novel.

7) Claims 2-4, 24-26 and 46-48 characterizes a recording layer comprising transition metal using rare earth elements, and alloy of metals using rare earth elements and a transition metal. These materials are the same as those of a recording layer which is described in D2 and D3. Therefore, Claims 2-4, 24-26 and 46-48 are easy for a person skilled in this art part to arrive at by selecting material of a recording layer which is described in D1-D3.

8) From the above comparisons, Claims 1, 9, 11-13, 23, 31, 33-35, 45, 53 and 55-57 are not considered to be novel. Claims 2-8, 10, 14-22, 24-30, 32, 36-44, 46-52, 54 and 58-66 are considered to be novel(PCT Article 33(2)).

Claims 2-4, 24-26 and 46-48 are easy for a skilled person to arrive at by the components of D1-D3. Therefore, they are not considered to involve an inventive step(PCT Article 33(3)).

Claims 1-66 are considered to be industrially applicable(PCT Article 33(4)).